



ELECTRONIC TUBE REFERENCE

E90CC

Voltage - Dual Triode (similar) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

Special-quality twin triode intended for switching, counting, and computer circuits, with long-life construction and characteristics optimized for dependable digital pulse operation.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	7
NOMINAL HEATER	6.3 V / 400 mA	PARALLEL HEATER	6.3 V / 400 mA
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Common cathode	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	4500 Ω
TRANSCONDUCTANCE	0.006 S
AMPLIFICATION FACTOR	27
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM CATHODE CURRENT	15 mA
Representative row for repeated identical sections.	

SECTION2 Triode	
PLATE RESISTANCE	4500 Ω
TRANSCONDUCTANCE	0.006 S
AMPLIFICATION FACTOR	27
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	2 W
MAXIMUM CATHODE CURRENT	15 mA
<i>Second physical triode section; added to align rows with SectionCount.</i>	

Special-quality common-cathode double triode for computer circuits requiring stable characteristics and long life.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1953 AEG

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1953 AEG

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Typical Plate Voltage	100 V	—
Typical Plate Current	8.5 mA	—

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GridPlateCapacitance	3.9 pF	—
Grid Earth Capacitance	3.7 pF	—



SOURCE OPERATING CONDITIONS

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1958 Amperex Industrial

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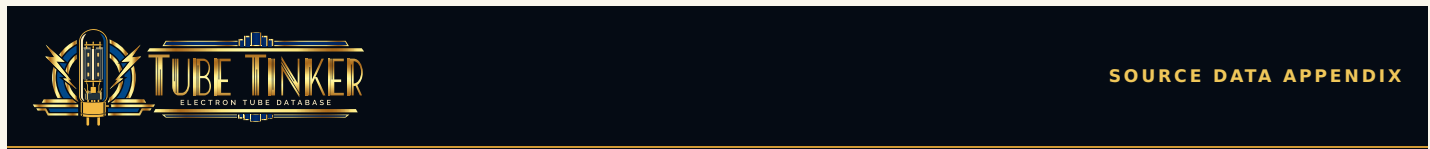
1958 AMPEREX INDUSTRIAL

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	Published table
Plate current	15 mA	Published table

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate resistance	6000 ohm	Published table

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Amplification factor	27	Published table
Heater/filament voltage	6.3 V	Published rating
Heater/filament current	400 mA	Published rating



SOURCE OPERATING CONDITIONS

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1963 Amperex Condensed

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1963 AMPEREX CONDENSED

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published rating
Heater current	400 mA	Published rating
Published characteristic value	3.4	PremiumQuality
Published characteristic value 2	0.35	PremiumQuality

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum plate voltage	300 V	PremiumQuality
Maximum plate current	15 mA	PremiumQuality



SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V1a

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1963 PHILIPS ELECTRON TUBES HANDBOOK V1A

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	EachUnit
Plate current	5.6 mA	EachUnit

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Transconductance	6000 μ S	EachUnit
Amplification factor	27	EachUnit



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1963 Philips Electron Tubes Handbook V3

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1963 PHILIPS ELECTRON TUBES HANDBOOK V3

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published heater rating
Heater current	400 mA	Published heater rating
Transconductance	6000 μ S	EachTriode
Amplification factor	27	EachTriode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	EachTriode
Grid bias	-2.1 V	EachTriode
Plate current	14.5 mA	EachTriode

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate capacitance	0.35 pF	EachTriode
Grid capacitance	3.4 pF	EachTriode


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1963 Siemens

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1963 SIEMENS

Section 1 · Triode

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate current	8.5 mA	Nominal

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Computer-service plate current	5.6 mA	Computing equipment


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1967 Mullard Receiving Tubes for Maintenance

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1967 MULLARD RECEIVING TUBES FOR MAINTENANCE

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
I _h	400 mA	Published in approved E90CC.pdf target datasheet; Section1

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The maximum variation of heater current at $V_h = 6.3V$ is	20 mA	Published in approved E90CC.pdf target datasheet; Section1
* C_{a-g} 2.0 2.5 3	0 pF	Published in approved E90CC.pdf target datasheet; Section1
* C_{in} 2.9 3.4 3	9 pF	Published in approved E90CC.pdf target datasheet; Section1
$C_{g'-h}$	0.3 pF	Published in approved E90CC.pdf target datasheet; Section1
$C_{g'-ll}$	0.15 pF	Published in approved E90CC.pdf target datasheet; Section1
) $C_{a'-a."}$ 1	4 pF	Published in approved E90CC.pdf target datasheet; Section1
$C_{g'-g'}$	0.22 pF	Published in approved E90CC.pdf target datasheet; Section1
$C_{a'-g'}$	0.15 pF	Published in approved E90CC.pdf target datasheet; Section1
C_{k-h}	6.5 pF	Published in approved E90CC.pdf target datasheet; Section1
at $V_a = 100V$, $V_g = -2.1V$ 8.5 4.5 to	12.5 mA	Published in approved E90CC.pdf target datasheet; Section1
$v_{\ll} = 0V$, $R_g = 47k\Omega$ 5.0 to 6.2	4.5 mA	Published in approved E90CC.pdf target datasheet; Section1
$R_k = 2500$ (decoupled) 6.0 4.5 to 7.5	3 mA	Published in approved E90CC.pdf target datasheet; Section1
$I_{k\max}$	15 mA	Published in approved E90CC.pdf target datasheet; Section1
* $i_{k(Pk)\max}$	75 mA	Published in approved E90CC.pdf target datasheet; Section1
* $i_{g(llk)\max}$	1 mA	Published in approved E90CC.pdf target datasheet; Section1
$T_{bulb\max}$	170 °C	Published in approved E90CC.pdf target datasheet; Section1

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
I_{a8}	5 mA	Published in approved E90CC.pdf target datasheet; Section1

SOURCE OPERATING CONDITIONS

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1999 Philips E-Z

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1999 PHILIPS E-Z

Section 1 · Triode

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Life expectancy	10000 h	Published datasheet value
Heater voltage Vs	6.3 V	Published datasheet value
Heater current I	400 mA	Published datasheet value
Heater current I _ϕ	420 mA	Published datasheet value
Anode voltage Va	100 V	Published datasheet value
Anode current	-12.5 mA	Published datasheet value
Mutual conductance S	6 mA/V	Published datasheet value
Cathode resistor Ry	250 Ω	Published datasheet value
Mutual conductance S	3 mA/V	Published datasheet value
Voltage between electrodes v	300 V	Published datasheet value
Cathode to heater (&	6.5 pF	Published datasheet value
under the following conditions during	0 h	Published datasheet value
I, =	8 mA	Published datasheet value
qzz Ia' =	0 mA	Published datasheet value
Grid current Ig max	250 μA	Published datasheet value
Cathode current Ik	15 mA	Published datasheet value
Cathode peak current I _{kp} max	75 mA	Published datasheet value
Voltage between cathode and heater Vit max	100 V	Published datasheet value
fixed bias Rg max	0.5 MΩ	Published datasheet value
Heater voltage: The average heater should be	6.3 V	Published datasheet value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Variations of the heater voltage exceeding the range of	6 V	Published datasheet value
(m4) Ay %J{ - f JMNREY A	-8 V	Published datasheet value
/ / P T T 'I y	-9 V	Published datasheet value
l' A /' g M,((	12 V	Published datasheet value

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